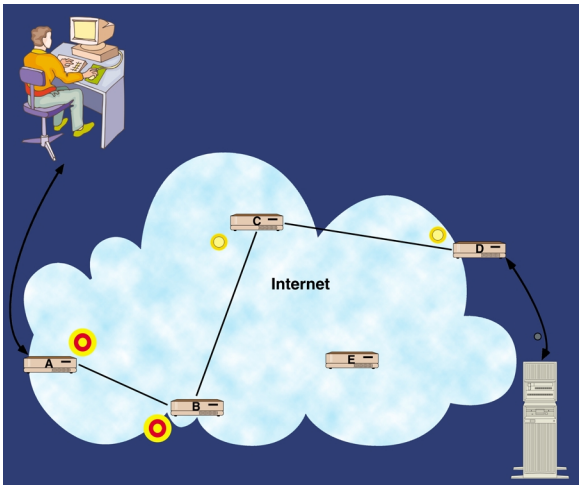
ONION ROUTING



Onion Routing is a flexible network communications infrastructure for hiding who is talking to whom. E-mail, purchasing, open-source information gathering, and intracompany or intercompany collaboration are all activities that can take place on the Internet, but which may benefit from hiding the identity of the source and/or destination. Onion Routing achieves sender/receiver anonymity by separating identification from routing information.

Onion Routing has the following features and advantages:

- Supports multiple applications
  - Email
  - Web Browsing
  - Remote Login
  - Any application that uses TCP/IP
- Easy proxy access means no modification to applications is required.
- Tunable configuration allows variable degrees of protection for individuals and/or enclaves.
- Automatic confidentiality (data unreadable except at connection endpoints)

Onion Routing works by creating a connection route for data to travel through a network. Nodes in the connection know only about the previous and next hop in the route. All traffic changes appearance as it travels through the network so nodes cannot readily compare traffic. A prototype Onion Routing Network has been developed and deployed at NRL, along with proxies for remote login, raw sockets, and two versions for Web browsing. One Web browsing version simply interfaces with the Onion Routing network, thus obscuring connection endpoints from network observers. The other version removes identifying information from the browser's transmissions, thereby obscuring one's identity from browsed Web sites. While in operation, the prototype has been visited by users creating up to 1.5 million connections in one month. Connections have originated from over thirty thousand IP addresses from all major top-level domains in over sixty countries.

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